

ENZYMES FOR BIOPOLYMER PRODUCTION

Abstract of the Disclosure

In order to optimize the flux or flow of carbon intermediates from normal cellular metabolism into PHAs it is desirable to optimize the **expression of the** enzymes of the PHA biosynthetic pathway. Gene fusions are genetic constructs where two open reading frames have been fused into one and encode hybrid proteins and in some cases bifunctional hybrid enzymes. Linkers may be added to spatially separate the two domains of the hybrid protein. In the case of enzymes which catalyse successive reactions in a pathway, the fusion of two genes results in bringing two enzymatic activities into close proximity to each other. When the product of the first reaction is a substrate for the second one, this new configuration of active sites may result in a faster transfer of the product of the first reaction to the second active site with a potential for increasing the flux through the pathway.